

Notice of Allowability

Application No.

10/690,210

Examiner

James J. Leybourne

Applicant(s)

LEPSELT, MARTIN P.

Art Unit

2881

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amendment received 23 December 2004.
2. ☒ The allowed claim(s) is/are 1-6
3. ☒ The drawings filed on 31 October 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413), Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |

DETAILED ACTION

1. According to the "Amendment" received 23 December 2004, claims 1, 3 and 5 have been amended.

Examiner's Amendment

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

In claim 1, lines 4, and 5 "and dissipates and dissipates" was changed to -
- and dissipates --.

In claim 3, lines 6, and 7 "and dissipates and dissipates" was changed to -
- and dissipates --.

Authorization for this examiner's amendment was given in a telephone interview with Leo Stanger on 25 May 2005.

Allowable Subject Matter

3. Claims 1-6 are allowed.
4. The following is an examiner's statement of reasons for allowance:

DETAILED ACTION

1. According to the "Amendment" received 23 December 2004, claims 1, 3 and 5 have been amended.

Allowable Subject Matter

2. Claims 1-6 are allowed.

3. The following is an examiner's statement of reasons for allowance:

Regarding independent claims 1, and 3, the prior art fails to disclose or make obvious a method of space charge neutralization or a method of performing electron beam exposure that comprises passing electrons through apertures in a mask and bleeding a gas into the vicinity of the apertures at a given rate to produce a gas pressure which is higher above the apertures than below the apertures and pumping the gas out from the direction of electron travel

Regarding independent claim 5 the prior art fails to teach or fairly suggest an electron beam exposure machine comprising a mask having apertures at a crossover plane of electrons from a focusing lens, a gas pump having gas emerging at the apertures in said mask and a shroud separating an electron beam enclosure into upper and lower parts with vacuum lines connected to the enclosure above the shroud and below the shroud.

Claims 2, 4 and 6 are allowable by virtue of their dependence on claims 1, 3 and 5 respectively.

Art Unit: 2881

preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance".

Relevant Prior Art

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Driessen (US 20020079464) teaches that electron beams and ion beams require that the beam path, including the mask, substrate and optical components, be kept in a high vacuum to prevent absorption and/or scattering of the beam.

Morita (JP02000011933) discloses introducing a thin gas, for instance, argon gas into a thermal electron emission source to produce positive charged ions that neutralize the electron space charge around the negative emission electrode. This differs from the invention because the gas is introduced in the source chamber rather than at the apertures of the mask.

Stengl et al. (USPN 5693950) discusses introducing charged particles with an opposite charge to the charge of the reproduction particles into the path of the reproduction charged particle beam in a defined area located between the mask and the wafer.


Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Leybourne whose telephone number is (703) 305-7067. The examiner can normally be reached 9:00 AM - 6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee can be reached on (703) 308-4116. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-3230. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

May 25, 2005

JJL


NIKITA WELLS
PRIMARY EXAMINER 05/26/05